Amendments to the Specification:

Please replace the second full paragraph on page 2 with the following amended paragraph:

[[FIG.]] FIGS. 3a and 3b are [[is]] flow charts of the conventional two-pass log-play

process. To restore the database to the one of the most recent consistent state, the log

records generated by all the committed transactions need to be played, but the log records

generated by so-called "loser transactions" that were active at the time of system crash have

to be skipped (A transaction is said to be a loser when there is a matching transaction start

log record but no transaction end record). For this purpose, all the log records encountered

scanning the log from the checkpointing start log record to the end of the log are played

(307). Then, the changes by the log records of the loser transactions are rolled back (308).

Please replace the second full paragraph on page 5 with the following amended paragraph:

An update log record is used to store changes in the database comprises of a log

header and a log body. FIG. 4 shows a variety of fields in the log header according to a

preferred embodiment. The "LSN (Log Sequence Number)" field stores the identity of the

current log record by preferably storing the physical address of log record on disk. The "TID

(Transaction ID)" field stores the identity of the transaction associated with the current log

record. The "PrevLSN" field stores the identity of the log record that was most recently

created by the same transaction so that the information can be conveniently used to chain the

log records of a transaction for fast backward retrieval. The "Type" [[filed]] field stores the

type of log record. The "Backup ID" field stores the relation between the log record and the

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changed page. This field needs to be maintained only when using a fuzzy checkpointing

scheme, which will be explained later in Figs. 8a and 8b. The "Page ID" field stores the

identity of a page where the update occurred. The "Offset" field stores the identity of a slot

inside a page where the update occurred. The "Size" field stores the length of the updated

slot.